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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,370	02/10/2004	Masafumi Mochizuki	NIT-320-02	9528

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EXAMINER	
TUGBANG, ANTHONY D	
ART UNIT	**PAPER NUMBER**
3729	

MAIL DATE	DELIVERY MODE
06/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,370	MOCHIZUKI ET AL.	
	Examiner	Art Unit	
	A. Dexter Tugbang	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12,14 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/046,973.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 24, 2008 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Mallary et al, Partee and Takeura et al.

Mallary discloses a method for manufacturing at least a single pole type magnetic head (in Figs. 1 and 4) comprising: forming a groove (not labeled in Fig. 4) on an inorganic insulating layer (e.g. 15); forming a magnetic layer (e.g. 16) serving as a main pole of a write head in the groove; and forming a recess in the magnetic layer on a trailing side of an air bearing surface, where the recess is formed by ion milling (e.g. 480, col. 7, lines 32-50).

It is noted that the insulating layer (e.g. 15) of Mallary is formed of a material of alumina, i.e. aluminum oxide (col. 6, lines 32-35), as alumina is inherently an inorganic insulating material. As evidence of inherency that alumina is an inorganic insulating material, the examiner cites Takeura et al (col. 3, lines 24-25).

It is further noted that the recess of the magnetic layer (e.g. 16) of Mallary is inherently formed on a trailing side (left vertical surface of block 10 in Fig. 1) of an air bearing surface. The air bearing surface is discussed by Mallary at col. 6, lines 7+. As evidence of inherency, Partee shows in equivalent magnetic head (in Fig. 1) having a trailing side (e.g. 11, left vertical side of block 12) of an air bearing surface.

With respect to the "wherein…" clauses (lines 9-12 of Claim 14) , Mallary (in Fig. 4) shows the magnetic layer, i.e. main pole (e.g. 16), after the recess has been formed, with a first line segment opposed to an auxiliary pole (e.g. 14) and a second line segment opposed to the first line segment. The second line segment has one point closer to the first line segment than opposite ends of the second line segment. To illustrate this feature, the examiner has provided Attachment A of Mallary's Figure 4. Element 480 shows the ion milling.

Claim Rejections - 35 USC § 103

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mallary et al in view of Cohen et al.

Mallary discloses the claimed manufacturing method as relied upon above in Claim 12. Mallary does not appear to mention that the groove formed in the inorganic insulating layer is formed by using a resist pattern on the insulating layer and then etching using the resist pattern as a mask.

Cohen shows that it is conventional to pattern an inorganic insulating layer of alumina (e.g. 40) by using a resist pattern (e.g. 42, 44, 46 in Fig. 3C) to etch a groove in the insulating layer (see sequence of Figs. 3C to 3D, col. 8, lines 8+).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Mallary by utilizing the conventional resist and etching process of Cohen, to positively produce a fine patterned groove in the inorganic insulating layer of alumina.

Response to Arguments

5. The applicant(s) arguments filed on April 24, 2008 have been fully considered but they are not persuasive.

The applicant(s) argue a number of limitations in Claim 12 are not met by the prior art, all of which the examiner completely disagrees with.

First, the applicant(s) argue that Mallary does not teach the first step of "forming a groove on an inorganic insulating layer" (line 4 of Claim 12). The inorganic insulating layer was read as alumina layer 15 in Mallary and the very fact that this layer does take the shape of the surfaces of which it is formed on is how this first step is met by Mallary. Note that the claim never requires forming a groove ***in*** the insulating layer and to argue this is simply arguing much more specifically than that which is claimed.

It is noted that if the step of "forming…layer" (line 4 of Claim 12) were replaced with – forming an inorganic insulating layer; forming a groove *in* the inorganic insulating layer--, that this amendment would appear to overcome the prior art.

Second, the applicant(s) argue that Mallary does not teach "forming…groove" (lines 5-6 of Claim 12). Mallary discloses that each magnetic layer (i.e. 14 and 16) is a pole, or laminated pole piece (col. 3, lines 20-26). So the magnetic NiFe layer 16 of Mallary is a pole, and can be

read as a "main pole of the write head", and thus the limitations of "forming…groove" (lines 5-6 of Claim 12) is met by Mallary.

Third, the applicant(s) argue that Mallary does not meet the wherein clause (lines 9-12 of Claim 12). The examiner notes that Attachment A provided in the last Office Action is fully incorporated by reference herein. Each magnetic layer (i.e. 14, 16) is a pole, or pole piece, for the reasons noted above. In Mallary, the "main pole" was read as layer 16 and the "auxiliary pole" was read as layer 14 (also shown in Attachment A). The entire main pole is "opposed" to the auxiliary pole because they are each opposite from one another and because there exist intervening layers (e.g. 15, 415) between them. So any line segments forming the main pole would be opposed to the auxiliary pole and Attachment A clearly illustrates how the relationship of the "first line segment" to the "second line segment" is met by the wherein clause.

Fourth and last, the applicant(s) argue that Mallary does not teach that the "recess is formed by ion milling" (last line of Claim 12). First, the examiner notes that this limitation was address in the last Office Action (in the end of the first paragraph of paragraph 3). Second, Mallary clearly discloses ion milling (e.g. 480) where the material of layer 16 is specifically removed (col. 7, lines 47+) and since this ion milling contributes to the final shape of the "main pole" that includes the recess, the limitations of "wherein the recess is formed by ion milling" is fully met by Mallary.

Although the rejections above are maintained, the examiner has suggested one at least one way as to how to amend the claim in order to overcome the prior art.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729

June 5, 2008